



The U.S. Attorney General has determined that the publication of this periodical is necessary in the transaction of the public business required by the Department of Justice. Information, instruction, and disclaimers are published in the January issues.

– JULY 2012 –

SELECTED REFERENCES

[The Selected References section is a compilation of recent publications of presumed interest to forensic chemists. Unless otherwise stated, all listed citations are published in English. Abbreviated mailing address information duplicates that which is provided by the abstracting service. Patents and Proceedings are reported only by their *Chemical Abstracts* citation number. For full text copies of any of the articles listed, you may email the DEA Library at dea.library@usdoj.gov.]

1. Hall AB, Coy SL, Nazarov EG, Vouros P. **Rapid separation and characterization of cocaine and cocaine cutting agents by differential mobility spectrometry-mass spectrometry.** *Journal of Forensic Sciences* 2012;57(3):750-756. [Editor's Notes: Ion-mobility based separation methods combined with mass spectrometry can be used often without chromatography, suppress chemical interferences of similar mass, and operate in seconds. We have evaluated differential mobility spectrometry-mass spectrometry (DMS-MS) for performance on adulterated cocaine mixtures. The DMS interface can be adapted to any MS system using atmospheric pressure ionization. Drug cutting agents, typical targets such as cocaine, and drug metabolites are rapidly separated by the DMS ion prefilter. Tests demonstrated characterization of complex mixtures, such as isolation of levamisole, an adulterant with alarming side effects, from a 13 component mixture. Contact: Biomedical Forensic Sciences, Boston University School of Medicine, Boston, MA 02118, USA.]
2. Ko BJ, Suh S, Suh YJ, In MK, Kim SH, Kim JH. **(1S,2S)-1-Methylamino-1-phenyl-2-chloropropane: Route specific marker impurity of methamphetamine synthesized from ephedrine via chloroephedrine.** *Forensic Science International* 2012;221(1-3):92-97. [Editor's Notes: Presents title study. Contact: Supreme Prosecutors' Office, 157, Banpo-daero, Drug Signature Analysis Center, Seoul 137-730, South Korea.]

3. Salouros H, Collins M, Cawley A, Longworth M. **Methylamphetamine synthesis: Does an alteration in synthesis conditions affect the $\Delta^{13}\text{C}$, $\Delta^{15}\text{N}$ and $\Delta^2\text{H}$ stable isotope ratio values of the product?** Drug Testing and Analysis 2012;4(5):330-336. [Editor's Notes: The use of stable isotope ratio mass spectrometry (IRMS) analysis as a complementary technique to conventional chemical profiling of fully synthetic illicit drugs such as methylamphetamine is examined. As part of this investigations the stable carbon ($\Delta^{13}\text{C}$), nitrogen ($\Delta^{15}\text{N}$), and hydrogen ($\Delta^2\text{H}$) isotope values in the precursor chemicals (ephedrine and pseudoephedrine) and the resulting methylamphetamine end-products have been measured to determine the synthetic origins of methylamphetamine. In this study, results are presented for $\Delta^{13}\text{C}$, $\Delta^{15}\text{N}$, and $\Delta^2\text{H}$ values in methylamphetamine synthesized from ephedrine and pseudoephedrine by two synthetic routes with varying experimental parameters. It was demonstrated that varying parameters, such as stoichiometry, reaction temperature, reaction time, and reaction pressure, had no effect on the $\Delta^{13}\text{C}$, $\Delta^{15}\text{N}$, and $\Delta^2\text{H}$ isotope values of the final methylamphetamine product, within measurement uncertainty. Therefore the value of the IRMS technique in identifying the synthetic origin of precursors, such as ephedrine and pseudoephedrine, is not compromised by the potential variation in synthetic method that is expected from one batch to the next. Contact: National Measurement Institute, Sydney, Australia.]

Additional References of Possible Interest:

1. Bassindale T. **Quantitative analysis of methamphetamine in hair of children removed from clandestine laboratories - Evidence of passive exposure?** Forensic Science International 2012;219(1-3):179-182. [Editor's Notes: In New Zealand, many children have been removed from clandestine laboratories following police intervention. In the last few years it has become standard procedure that these children have hair samples taken and these samples are submitted to the laboratory for analysis. There are various mechanisms for the incorporation of drugs into hair. The hair follicle has a rich blood supply, so any drug that may be circulating in the blood can be incorporated into the growing hair. Another mechanism is via external contamination, such as spilling a drug on the hair or through exposure to fumes or vapors. Hair samples were analyzed for methamphetamine and amphetamine. From the 52 cases analyzed 38 (73%) were positive for methamphetamine (>0.1 ng/mg) and amphetamine was detected in 34 of these cases. In no case was amphetamine detected without methamphetamine. The hair washes (prior to extraction) were also analyzed (quantified in 30 of the pos. cases) and only 3 had a wash to hair ratio of >0.1 (all were <0.5), which may be indicative of a low level of external contamination. This low level of evidence of external contamination suggests that the children are exposed to methamphetamine and are incorporating it into the hair through the blood stream. Contact: Institute of Environmental Science and Research (ESR) Ltd, Kenepuru Science Centre, Porirua, New Zealand.]
2. Guo Z, Zheng H, Lu Y, Wei Y. **Isolation and purification of heroin from heroin street samples by preparative high performance liquid chromatography.** Forensic Science International 2012, Ahead of Print. [Editor's Notes: Presents title study. Contact: State Key Laboratory of Chemical Resource Engineering, Beijing University of Chemical Technology, Beijing 100029, China.]

3. Olds WJ, Sundarajoo S, Selby M, Cletus B, Fredericks PM, Izake EL. **Noninvasive, quantitative analysis of drug mixtures in containers using spatially offset Raman spectroscopy (SORS) and multivariate statistical analysis.** Applied Spectroscopy 2012;66(5):530-537. [Editor's Notes: Presents title study. Contact: Discipline of Chemistry, Faculty of Science and Technology, Queensland University of Technology, Brisbane, Queensland 4001, Australia.]

4. Pal R, Megharaj M, Naidu R, Klass G, Cox M, Kirkbride KP. **Degradation in soil of precursors and by-products associated with the illicit manufacture of methylamphetamine: Implications for clandestine drug laboratory investigation.** Forensic Science International 2012, Ahead of Print. [Editor's Notes: Presents title study. Contact: Centre for Environmental Risk Assessment and Remediation, University of South Australia, Adelaide, Australia.]

5. Penido CAFO, Silveira L, Pacheco MTT. **Quantification of binary mixtures of cocaine and adulterants using dispersive Raman and FT-IR spectroscopy and principal component regression.** Instrumentation Science & Technology 2012;40 (5):441-456. [Editor's Notes: Presents title study. Contact: Biomedical Engineering Center, Parque Tecnológico de São José dos Campos, Universidade Camilo Castelo Branco - UNICASTELO, ZIP, Brazil.]

6. Plotka JM, Morrison C, Adam D, Biziuk M. **Chiral analysis of chloro intermediates of methylamphetamine by one-dimensional and multidimensional NMR and GC/MS.** Analytical Chemistry 2012, Ahead of Print. [Editor's Notes: Presents title study. Contact: Department of Analytical Chemistry, Chemical Faculty, Gdansk University of Technology, Gdansk 80-233, Poland.]

7. Trofin IG, Dabija G, Vaireanu DI, Filipescu L. **Long - term storage and cannabis oil stability.** Revista de Chimie 2012;63(3):293-297. [Editor's Notes: Presents title study. Contact: Central Laboratory for Drug Analysis and Profiling, General Inspectorate of Romanian Police, Bucharest, Romania.]

8. Trofin IG, Dabija G, Vaireanu DI, Filipescu L. **The influence of long-term storage conditions on the stability of cannabinoids derived from cannabis resin.** Revista de Chimie 2012;63(4):422-427. [Editor's Notes: Presents title study. Contact: Central Laboratory for Drug Analysis and Profiling, General Inspectorate of Romanian Police, Bucharest, Romania.]

9. Tsumura Y, Aoki R, Tokieda Y, Akutsu M, Kawase Y, Kataoka T, Takagi T, Mizuno T, Fukada M, Fujii H, Kurahashi K. **A survey of the potency of Japanese illicit cannabis in fiscal year 2010.** Forensic Science International 2012;221(1-3):77-83. [Editor's note: Presents title study. Contact: Kobe Branch, Narcotics Control Department, Kinki Regional Bureau of Health and Welfare (Kinki NCD), Labour and Welfare (MHLW), Ministry of Health, Chuo-ku, Kobe, Japan.]

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THE DEA STATE AND LOCAL FORENSIC CHEMISTS SEMINAR SCHEDULE

The schedule for the DEA State and Local Forensic Chemists Seminar is as follows:

November 5 - 9, 2012
March 11 - 15, 2013
June 10 - 14, 2013
September 16 - 20, 2013
November 4 - 8, 2013

The school is open only to forensic chemists working for law enforcement agencies. It is intended for chemists who have completed their agency's internal training program and have also been working on the bench for at least one year. There is no tuition charge. The course is held at the Hyatt Place Dulles North Hotel in Sterling, Virginia (near the Washington/Dulles International Airport). A copy of the application form is reproduced on the last page of this issue of *Microgram Bulletin*. Completed applications should be mailed to the Special Testing and Research Laboratory at 22624 Dulles Summit Court, Dulles, VA 20166. For additional information, email DEA-Forensic.Chemist.Seminar@usdoj.gov.

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SCIENTIFIC MEETINGS

Title: The 41st Annual MAFS Meeting

Sponsoring Organization: Midwestern Association of Forensic Scientists

Inclusive Dates: September 24 - 28, 2012

Location: Hilton Milwaukee City Center (Milwaukee, WI)

Contact Information: See website

Website: www.mafs.net

Title: Southern Association of Forensic Scientists 2012 Annual Meeting

Sponsoring Organization: Southern Association of Forensic Scientists

Inclusive Dates: September 30 - October 4, 2012

Location: Hilton Pensacola Beach Gulf Front (Pensacola Beach, FL)

Contact Information: See website

Website: www.southernforensic.org

DEA State and Local Forensic Chemist Seminar Application			
Name: (PRINT NAME EXACTLY AS IT IS TO APPEAR ON CERTIFICATE)		Title:	
Employer:			
Your Office Mailing Address (include city, state, and zipcode):			Length of Service:
Business Telephone: () -	Business Fax: () -	Date of Application:	
Email Address:			
Education			
College or University	Degree	Major	
Please Check Which Techniques or Equipment Are Used in Your Laboratory			
<input type="checkbox"/>	Color Tests	<input type="checkbox"/>	UV
<input type="checkbox"/>	Column Chromatography	<input type="checkbox"/>	IR
<input type="checkbox"/>	Microcrystal Tests	<input type="checkbox"/>	CE
<input type="checkbox"/>	Thin Layer Chromatography	<input type="checkbox"/>	GC/MS
<input type="checkbox"/>	GC	<input type="checkbox"/>	Other (please specify)
<input type="checkbox"/>	HPLC	<input type="checkbox"/>	Other (please specify)
Indicate Analytical Problem(s) Nominee Would Like to Have Covered:			
Choice of Seminar Dates:			
1st Choice:		2nd Choice:	
Laboratory Chief/Director:			
Printed Name: _____		Signature: _____	
Title: _____		Date: _____	
Phone: _____			